

ABSTRACT OF THE DISCLOSURE

The present invention relates to a biologically active serum-derived composition of matter (SDF), having a low molecular weight, being electrically charged at acidic pH and having absorption at 280 nm. The molecular weight of said SDF was determined by electron spray mass spectrometry and is of 316 Da. SDF of the present invention or its complex with ceruloplasmin (CP) have several therapeutic properties. For example, SDF or its complex with CP is capable of inducing terminal cell differentiation of leukemic cells, which as a result, may lose their ability to proliferate and their ability for self cell renewal. Further, SDF or the complex with CP is capable of stimulating the proliferation of early, normal progenitor cells and inhibiting enhanced angiogenesis. In addition, SDF or its complex with CP is capable of *ex vivo* expanding normal stem and progenitor cells. The invention also relates to pharmaceutical composition comprising as active ingredient SDF or its complex and optionally further comprising pharmaceutically acceptable additives. Such pharmaceutical compositions may be for inhibiting enhance angiogenesis, for inducing remission of tumors, for maintaining tumor remission, and for expanding hematopoietic normal stem and progenitor bone marrow transplants.